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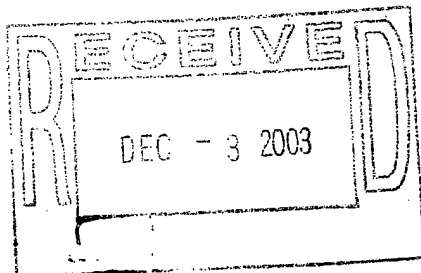
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JENKINS & WILSON, PA 3100 TOWER BLVD SUITE 1400 DURHAM, NC 27707				
			EXAMINER MWANYOHA, SADIKI P	
			ART UNIT 2642	PAPER NUMBER 18

DATE MAILED: 12/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.



DOCKET DATES: 3/1/41/5/1/6/1/04
ASSIGNED ATTY: REJ/GA/H
FILE NO. 1322/45/2
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DATE: 12/4/03

Office Action Summary

Application No.

09/839,394

Applicant(s)

BENEDYK ET AL.

Examiner

Sadiki Mwanyoha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20, 22-45 and 47-57 is/are rejected.
- 7) ☒ Claim(s) 21 and 46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-11.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 46 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 46 recites the limitation "static routing key table". There is insufficient antecedent basis for this limitation in the claim. Applicant may note, however, that this limitation is introduced in claim 45.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 29, 40, 44 and 54 are rejected under 35 U.S.C. 102(e) as being anticipated by US patent 6,515,997 to Feltner et al.

Regarding claim 1, Feltner et al. discloses a "Method and system for automatic configuration of a gateway translation function". The invention relates to internetworking an IP network with an SS7 network via a translation function. Referring to Feltner et al. Fig. 5, the invention comprises an IP network (102), SS7 network (104), Network Access Controller (i.e. signaling node) (106), subscribers (126), and IP-SS7 gateway (108) (i.e. network routing node).

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According to the invention, the NAC (106) establishes a connection with the IP-SS7 gateway (108) and sends a registration message having IP address and port number information to the IP-SS7 gateway (108). The IP-SS7 gateway (108) uses the information in the registration message to update its translation function (i.e. at a signaling node in an Internet protocol network generating a routing key registration message, the routing key registration message including data for updating the status of routing key information associated with the signaling node) [see Feltner et al. col. 2, line 60]. The translation function may utilize a translation table (i.e. routing key database) [see Feltner et al. col. 8, line 15]. Furthermore, IP-SS7 gateway (108) updates the translation function (i.e. routing key database) in order to provide call routing for subscribers of the NAC (106) to destinations within the PLMN (104), which encompasses SS7 network (104). Not only must the NAC (106) be configured and adapted to create registration messages, the IP-SS7 gateway (108) must also be configured and able to receive and interpret registration messages. The IP-SS7 gateway (108) must also be able to translate the information in the registration message into a format capable of updating the translation function (i.e. sending the routing key registration message to a network routing node capable of routing messages between the IP network and an SS7 network; and at the network routing node, receiving the routing key registration message and using the data in the routing key registration message to dynamically update a routing key database entry associated with a connection between the signaling node and the network routing node) [see Feltner et al. col. 8, line 5].

Regarding claim 29, see Feltner et al. as applied above.

Regarding claim 40, recall that the invention of Feltner et al. comprises an IP-SS7 gateway (i.e. SS7-to-IP gateway routing node).

Regarding claim 44, see Feltner et al. as applied above.

Regarding claim 54, see Feltner et al. as applied above and further note that the invention of Feltner et al. inherently comprises a TCP/IP socket interface, since one aspect of the invention involves translating IP address and TCP port number information from IP networks to SS7 information [see Feltner et al. col. 2, line 45].

4. Claims 11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by US pre-grant publication US 2001/0029182 to McCann et al.

Regarding claim 11, McCann et al. discloses "Methods and systems for routing messages associated with ported subscribers in a mobile communications network". According to the invention, signaling messages requiring routing database processing (i.e. receiving a signaling message that requires routing) are first serviced by an exception-based database (i.e. first routing key table) [see McCann et al. ¶ 69]. That is, a lookup (i.e. search for a match) is performed in the exception-database based on, among other criteria, an MSISDN number associated with the incoming signaling message (i.e. using information contained in the signaling message to search for a match in a first routing key table). If a match is found in the exception-database, the appropriate routing data is returned by the exception-database and the signaling message is modified accordingly before further routing (i.e. in response to locating a match in the first routing key table, routing the signaling message using routing information returned by the first routing key table) [see McCann et al. ¶ 70]. However, in the event that no match is located in the exception-database, a secondary search is performed in a default range-based database, or second routing key table (i.e. in response to failing to locate a match in the first routing key table, using

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the information contained in the signaling message to search for a match in a second routing key table; and in response to locating a match in the second routing key table, routing the signaling message using routing information returned by the second routing key table).

Regarding claim 12, further note that the signaling messages taught by McCann et al. are signaling system 7 (SS7) messages.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 30-32, 41-43, 45, 47 and 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feltner et al.

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Regarding claims 30 and 31, Feltner et al. teaches the system of claim 29. Furthermore, Applicant is attempting to claim configurations for media gateway controllers and service control points, which are well-known, and therefore obvious over the prior art.

Regarding claim 32, Applicant is attempting to ascribe aspects of the claimed invention to a database server node, which is well-known, and therefore obvious over the prior art.

Regarding claim 41, a routing database based on a dynamic and static routing table is analogous to a reliance on both a cache (i.e. dynamic routing key table) and a memory (i.e. static routing key table), which is well-known, and therefore obvious over the prior art.

Regarding claim 42, Applicant is simply claiming two separate features (i.e. dynamic routing key table and static routing key table) to be integral (i.e. single routing key table). Such a claim is based merely on a design choice that would have been obvious over the prior art.

Regarding claim 43, further note that binary tree indexing is well-known in the art for its fast (i.e. logarithmic time) search capabilities. Therefore, it would have been obvious to index the routing key table data based on binary tree searching. Applicant is referred to the vast literature on computation theory, especially Lipman et al. cited below.

Regarding claim 45, as shown above, Feltner et al. teaches the network routing node of claim 44. Furthermore, the use of static routing tables is well-known, and therefore would have been obvious over the prior art.

Regarding claim 47, as shown above, Feltner et al. teaches the network routing node of claim 44. Furthermore, in claim 47, Applicant is attempting to ascribe aspects of the claimed invention to a data communication module, which is well-known and therefore, obvious over the prior art.

Regarding 55 and 56, Feltner et al. teaches the data communication module of claim 54. Furthermore, Applicant is attempting to claim configurations for media gateway controllers and service control points, which are well-known, and therefore obvious over the prior art.

Regarding claim 57, the translation function (i.e. dynamic routing key table) taught by Feltner et al. is responsible for translating (i.e. maps) IP address and TCP port number information into SS7 information (i.e. dynamic routing key table maps the SS7-based routing keys to TCP/IP socket associations for the signaling nodes in the IP network).

8. Claims 2-10, 13-20, 22, 33-39 and 48-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feltner et al. in view of McCann et al.

Regarding claims 2 and 4, as shown above, Feltner et al. does teach the method of claim 1. However, this reference does not teach generating a routing key registration message includes generating a transport adapter layer interface (TALI) message or SS7 MTP level two user adaptation layer (M2UA) message.

Nevertheless, according to the invention of McCann et al., outgoing SS7 packets routed through a data communication module, or DCM, are transmitted into an IP network. As the SS7 protocol and the IP protocol are not inherently compatible, all SS7 message packets that are to be transmitted via an IP network must first be encapsulated within an IP routing envelope prior to transmission. Such signaling messages transmitted by the DCM may include TALI protocol messages, M2UA as well as other signaling protocols that may be transported via TCP/IP or similar based IP based protocols [see McCann et al. ¶ 50].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify, in the invention taught by Feltner et al., that the signaling protocols carried by the IP network include TALI and M2UA, since such protocols are widely known and used in the art.

Regarding claim 3, further note that one of the alternative IP based protocols to TCP/IP, cited in the invention of McCann et al., includes stream control transmission protocol (SCTP) [see McCann et al. ¶ 80].

Regarding claims 5-9, Applicant is attempting to claim a method employing the use of features belonging to a well-known standard. Specifically, DPC, OPC, SI, CIC and SSN are all well-known fields contained in a SS7 message signaling unit (MSU), and are employed in routing related tasks. Therefore, claims 5-9 are obvious over the prior art.

Regarding claim 10, further note that according to the invention of Feltner et al. in view of McCann et al., NAC (106) is coupled to IP-SS7 gateway (108) via IP network (102). Furthermore, it is well-known to use IP sockets to allow communications between nodes to occur on a per application basis. This allows multiple connections to be maintained at a node, possibly servicing multiple applications or tasks. Therefore, claim 10 is obvious over the prior art.

Regarding claim 13, recall that McCann et al. teaches the method of claim 11. Further note Feltner et al. in view of McCann et al. as applied above to claim 2.

Regarding claim 14, further note Feltner et al. in view of McCann et al. as applied above to claim 3.

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Regarding claim 15, further note that in addition to the TALI protocol and M2UA protocols, the signaling messages taught by McCann et al. may also include session initiation protocol (SIP).

Regarding claims 16-19 and 22, see Feltner et al. in view of McCann et al. as applied above to claims 5-9, respectively.

Regarding claims 33 and 34, recall that Feltner et al. teaches the system of claim 29. Further note Feltner et al. in view of McCann et al. as applied above to claims 2 and 3, respectively.

Regarding claims 35-39, see Feltner et al. in view of McCann et al. as applied above to claims 5-9, respectively.

Regarding claim 20, recall that Feltner et al. teaches automatic configuration of a gateway translation function (i.e. dynamic routing key table) via registration messages (i.e. automatically updating entries in the dynamic routing key table based on the self-registration messages). Further recall that McCann et al. teaches a lookup (i.e. searching for a match) in an exception-database (i.e. dynamic routing key table).

Regarding claims 48 and 49, recall that Feltner et al. teaches the network routing node of claim 44. Further note Feltner et al. in view of McCann et al. as applied above to claims 2 and 3, respectively.

Regarding claims 50-53, see Feltner et al. in view of McCann et al. as applied above to claims 5-8, respectively.

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9. Claims 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feltner et al. in view of US patent 5,650,998 to Angenot et al.

Regarding claim 23, in light of the foregoing, NAC (106) and IP-SS7 gateway (108) taught by Feltner et al. read on IP node and signaling gateway, respectively (i.e. establishing a first connection between a signaling gateway and an IP node; sending call signaling messages between the signaling gateway and the first IP node over the first connection). Feltner et al. also teaches the sending of a registration message to inform the signaling gateway of a new connection (sending a routing key registration message from the first IP node to the signaling gateway over the second connection, the routing key registration message including at least one SS7 routing key). However, Feltner et al. does not teach establishing a second connection between the signaling gateway and the first IP node; in response to failure of the first connection, sending a routing key registration message from the first IP node to the signaling gateway over the second connection, the routing key registration message including at least one SS7 routing key for dynamically diverting signaling messages originally destined to be sent over the first connection to the second connection.

Nevertheless, Angenot et al. discloses a "Method for reassigning traffic in a common channel signaling system (SS7)". The invention comprises a "change-over" procedure allowing signaling traffic carried by a link (i.e. first connection) that has become unavailable to be diverted to another signaling link (i.e. second connection) sharing the same link set as the failed link. Such a feature is well-known in the art and is enabled by the inherent redundancy in the SS7 architecture afforded by link sets. The first and second connections set forth in claim 23, are

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simply an IP construct which is analogous to a link set having a pair of links for carrying SS7 signaling messages.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to establish multiple connections between NAC (106) and IP-SS7 gateway (108) in order to emulate an SS7 link set and use the registration message (taught by Feltner et al.) to divert traffic from an unavailable connection to an available connection, since such a feature could be modeled after a well-known redundancy mechanism.

Regarding claim 24, further note that it is well-known to deploy network nodes, such as signaling transfer points (STP) in redundant pairs. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to introduce a second NAC (106) (i.e. IP node) having a third connection to IP-SS7 gateway (i.e. signaling gateway) for diverting traffic in the event of a NAC failure.

Regarding claim 25-28, Applicant is attempting to claim configurations for media gateway controllers and service control points, which are well-known, and therefore obvious over the prior art.

Allowable Subject Matter

10. Claims 21 and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 21, no prior art was found that taught searching a secondary, static routing key table when no match is found in a first routing table. Such a method provides manual, or default routing, which is especially useful for registering signaling nodes prior to system startup when no dynamic registration information is available.

Regarding claim 46, no prior art was found that taught controlling the sequence in which dynamic and static routing key tables are searched. Such a feature affords greater flexibility.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Lipman et al. US patent 6,192,051 discloses "Network router search engine using compressed tree forwarding table".

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sadiki Mwanyoha whose telephone number is 703-305-3417.


The examiner can normally be reached on 8:30-5:00 M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on 703-305-4731. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

spm


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